

# FA Battalion C<sup>2</sup> in Albania and Kosovo

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In April 1999, the 1st Battalion, 27th Field Artillery (Multiple-Launch Rocket System, MLRS) *Gridsmasher* (1-27 FA), V Corps, deployed to Tirana, Albania, in support of Task Force (TF) Hawk. During the next three months, our battalion faced a series of command and control (C<sup>2</sup>) challenges as part of TF Hawk in Albania and then TF Falcon in Kosovo, but our battalion proved flexible enough to meet them.

**Task Force Hawk—Albania.** First, the battalion had a nonstandard tactical mission to provide MLRS fires in support of the AH-64 Apache helicopters of V Corps' 11th Aviation Regiment. Our mission closely resembled direct support (DS), but we did not furnish fire support personnel. Additionally, our fires were planned by the V Corps Deep Operations Coordination Cell (DOCC), which coordinated with the attack helicopter battalion and then sent the fire plans to the 1-27 FA fire direction center (FDC). Initially, we had no brigade element to serve as a conduit between the DOCC and the battalion as in standard operations.

**Delivery of Missile Fires.** The battalion faced a number of technical challenges related to fire mission processing. In the weeks preceding the deploy-

ment, we upgraded our launcher software to Version 7.2 and fire direction system (FDS) weapons descriptive files to shoot extended-range rockets. This added a third munition to the battalion's capabilities but posed no training challenges.

What did pose some challenges was the Army tactical missile system (ATACMS). In corps Warfighters and home station command post exercises (CPXs), the battalion became quite proficient at executing fire plans with no more than six ATACMS targets. However, the number of ATACMS shot in a single suppression of enemy air defense (SEAD) plan during mission rehearsal exercises (MREs) in Albania expanded dramatically to 81 targets. This required us to increase the number of launchers shooting in the fire plan, sometimes up to 15 launchers on a firing point, and to deconflict by space and time.

Deconflicting by space at first appeared easy. We had developed new MLRS tactics, techniques and procedures (TTP) that more closely resembled cannon than MLRS TTP and thought we had struck a balance between force protection and tactical dispersion. (See the sidebar to this article "Cannon Battery TTP for MLRS in Albania.")

The compact firing points, however, posed a problem because of the ATACMS missile's random offset when firing. This offset causes the missile to travel up to 32 mils off the launcher-target line for the first few seconds of flight to protect the launcher from counterbattery fire. This offset presented a risk of collision because of the close proximity of the launchers and the unpredictable size and direction of the offset.

Deconflicting by time was also a challenge. When firing in support of Apache strikes, the DOCC wanted the missiles shot as late as possible to limit the enemy's recovery time. On the other hand, the DOCC wanted all firing completed not later than 20 minutes before the helicopters crossed the forward line of own troops (FLOT). Balancing these two requirements caused us to try to fire as many missiles as possible in as short a time as possible.

Complicating this compressed fire plan is the fact the FDS only can send time-to-fires (TTFs) or time-on-targets (TOTs) in minute increments and the fire-to-ignition time is unpredictable (up to 15 seconds for Block I and up to 90 seconds for Block IA).

At first we attempted to solve these problems using an "At My Command" method of control, but the increased radio traffic and FDC's complex control of primary and backup launchers made the method unmanageable. We eventually settled on firing no more than two missiles at one time with no less than one minute between pairs of missiles. We also paired flank launchers to fire whenever possible.

Throughout the remainder of the operation, the battalion continued to develop its TTP for delivery of missile fires. Target groups were pushed closer to the F-Hour until the final targets were shot at F-10 minutes. Standard fire plans were broken into several groups, requiring the batteries to conduct deliberate, rehearsed reload operations between target groups. The fire direction of the ATACMS fire plan was constantly perfected, but it was a mission the battalion was familiar with in training. During the deployment, though, other battalion missions required drastic changes in standing operations and fire direction procedures.

To extend the task force's deep strike capability, the task force attached four improved position determining system (IPDS) launchers from 2-18 FA to 1-27

FA. These launchers added a fourth munition to the *Gridsmasher* arsenal, the Block IA missile that can reach out beyond 300 kilometers.

We established a rotation cycle for our fire support mission. About every four days, a battery would roll out of the base camp to the firing points. The battery that completed its four-day rotation returned to the base camp for recovery operations, and the third battery began its troop-leading procedures and mission preparation. The four IPDS launchers had a more robust rotation. Every time one of 1-27 FA's firing batteries deployed to its firing points, two IPDS launchers were attached to it to maintain the deep strike capability.

**Communications.** The battalion had trouble communicating with the firing batteries at the firing points. There was significant radio frequency interference resulting from the terrain in the Albanian lowlands and from numerous, unshielded, high-tension power lines in our operating area, making frequency hopping impossible. Even with single-channel communications, we had to establish a retransmission site to communicate 15 kilometers.

Unfortunately, the battalion's modified table of organization and equipment (MTOE) does not provide retrans assets for the three critical nets: battalion fire direction voice and digital and the battalion command net. To communicate via radio, we "borrowed" a retrans team from the 41st FA Brigade and created a third vehicle out of organic assets. Then to maintain a redundant means of communications with the firing points at all times, we were issued tactical satellite (TACSAT) communications equipment (MST-20 and, later, Spitfire).

**Forward Operating Base (FOB).** To provide a counterfire detection and rocket firing capability into Kosovo, we established a FOB in the northeastern mountains of Albania, creating the FA Task Force. (See Figure 1.) Two of our IPDS launchers were attached to the MLRS battery at the FOB to provide an even greater deep strike capability.

The battalion FDC and staff had to conduct split operations to command and control ATACMS fires from the Tirana area and rocket or missile fires from the FOB. The battalion FDO and one Military Occupational Specialty (MOS) 13P30 MLRS Specialist came from the battalion FDC with a 13P20 and 13P10 from the firing batteries, constituting the forward battalion FDC.

The tactical operations center (TOC) at the FOB consisted of the battalion commander, the assistant S3, S2 NCO, two operations sergeants, and one S1 and S4 NCO. This forward TOC was spread thin, relying on the TOC in Tirana for much of its service support and intelligence operations.

Initially, the presence of a maneuver brigade tactical command post (TAC), a maneuver battalion TAC and the MLRS battalion TOC created a confusing C<sup>2</sup> relationship for the units at the FOB. Later, the 1-27 FA commander was designated commander of Task Force 1-27 with clear authority over attached units in the FOB.

With the IPDS launchers, Task Force 1-27 could range deep into Serbian territory with Block IA ATACMS. Depending on the fire plan, the launchers could fire a mix of extended-range and M26 rockets from positions near the Kosovo-Albanian border, keeping Block I and IA ATACMS at the FOB for the long-range capability.

The Paladin platoon from 4-27 FA at the FOB also could move to positions near the border to shoot dual-purpose improved conventional munitions (DPICM). The fire plans called for the platoon to shoot 30 rounds per target, no more than two targets per fire plan.

The straight-line distance between Tirana and the FOB was more than 60 miles, far outside the maximum range

of the single-channel ground and airborne radio system (SINCGARS). For communications, the FOB FDC relied on three TACSAT nets: V Corps Artillery Fire Support, TF Deep Strike and TF Force Protection (see Figure 2 on Page 22). The Spitfire TACSAT can transmit digital traffic, but because frequencies were limited, we only operated on the three voice nets.

For digital communications, the FDC used the telephone interface device (TID). The TID is basically a modem that uses mobile subscriber equipment (MSE) phones in conjunction with the lightweight computer unit (LCU) and a tactical communications interface module (TCIM) wire line adapter to send and receive digital traffic. This system requires two MSE lines for constant communications on a voice and digital net. When the Q-37 radar and its target processing section (TPS) moved forward from the FOB to provide counterfire coverage into Kosovo, they used Spitfire TACSAT for voice communications and TID for digital—a second signal extension node (SEN) team was sent to the radar site.

In the FOB FDC, two MSE phones and TIDs were dedicated to digital communications with the TPS at the radar site and with higher headquarters in Tirana. It required three TIDs to communicate with the TPS, V Corps Artillery DOCC and the rear 1-27 FA FDC

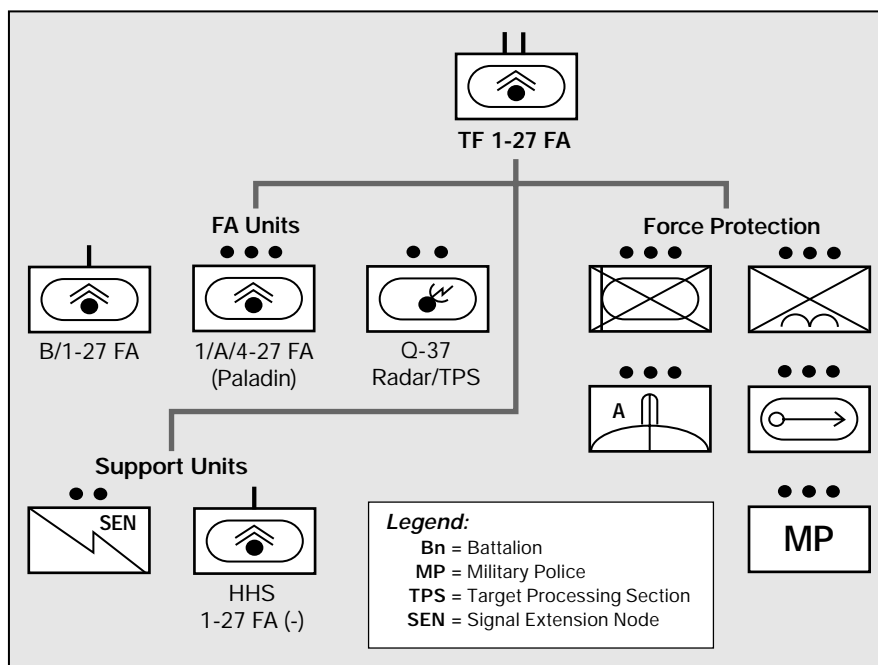


Figure 1: Organization of Task Force 1-27. Almost half the personnel assigned to the forward operating base (FOB) were force protection assets. TF 1-27 allowed TF Hawk to range out to 300 kilometers to hit targets in Kosovo with rocket and cannon fire.

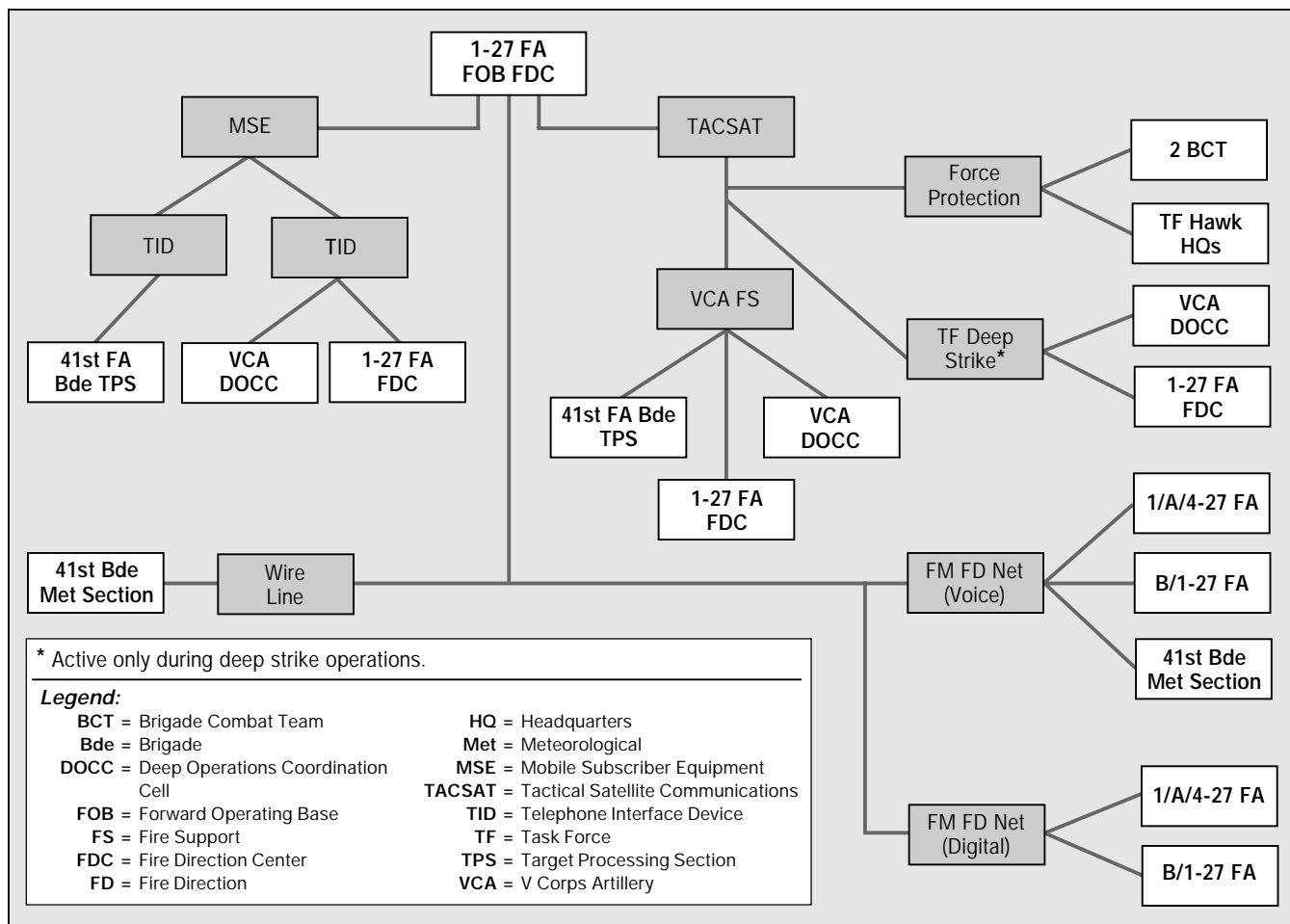


Figure 2: FA communications for TF 1-27 during operations at the FOB in Northern Albania. The battalion FDC at the FOB relied on TACSAT for voice communications with units in Tirana and the TPS and radar section located east of the FOB. Digital communications to Tirana relied on MSE and TIDs with signal extension node (SEN) support. Firing units at the FOB communicated with the FDC via FM radio.

(Tirana). But the limited number of TIDs forced the FOB FDC to keep one dedicated to the TPS to process counterfire missions and alternate the second one between the V Corps DOCC and the rear 1-27 FA FDC. The TID was used by the rear FDC for operational and logistics information and by the DOCC for fire plans.

*Cannon/MLRS Simultaneous C<sup>2</sup>.* The most significant challenge for an MLRS battalion is to command and control operations involving cannon and MLRS batteries simultaneously. The FDC crewmembers (MOS 13P) found themselves doing the job of a 13C Tactical Fire Direction Specialist, controlling rocket and cannon fires and processing counterfire missions.

The most difficult obstacle was that the FDS can't communicate with the battery computer system (BCS) in cannon units, except for basic messages common to all artillery systems (MET;CM, SYS;PTM and SPRT;BGEOM). Initially, the FDC maintained only the FDS to

communicate with the MLRS battery and relied on voice FM radio to send fire plans to the Paladin FDC.

Recognizing the limitations of this set-up, the FDC reconfigured the LCU to operate as an initial fire support automation system (IFSAS) that can communicate with all fire direction software. The FDC crewmembers had to learn the system, most of whom had a basic understanding but limited experience with cannon fire direction and counterfire processing. The 41st Brigade Fire Control Element (FCE) sent one 13C to the FOB to provide instruction, and A Battery, 4-27 FA, gave basic cannon fire direction lessons to our 13Ps.

IFSAS limitations became evident when the FDC began sending fire plans to the two firing units. The system works well with cannons, but for the MLRS FDS to receive missions properly from the IFSAS, 13Cs must employ various workarounds. Unwilling to send incomplete fire missions to the MLRS firing battery, the FOB FDC used an LCU with

FDS to communicate with the FDC in Tirana for MLRS fire plans and another LCU running IFSAS software to communicate with the TPS and Paladin platoon FDC for cannon missions and counterfire targets. The meteorological section sent computer Met data to the FDS, which was sent to the IFSAS via wire line and then to the Paladin FDC via FM radio. The drawbacks were that two crewmembers had to man two LCUs as opposed to one, and the system was more complex than normal operations.

IFSAS normally doesn't have to communicate with MLRS units below battalion. At the battalion level, the FDC has the resources and time to manipulate the fire missions so the battery can receive complete and accurate calls-for-fire.

At the FOB, the mission was to provide counterfire. In a heavy counterfire fight, the battery would have had difficulty sending correct fire missions from the IFSAS (a job of the battalion FDC or trained 13Cs) and manage the battery

assets at the same time. The advanced FA tactical data system (AFATDS) Version 00 will eliminate the challenges of directing fires with incompatible software systems.

The benefits of the two operating systems became apparent during counterfire rehearsals with the TPS and V Corps DOCC. Unlike a counterfire fight trained in a Warfighter exercise, all counterfire targets had to be approved above the corps level due to the political nature of the conflict. Serving as a conduit between the TPS collocated with the Q-37 radar and DOCC, the battalion FDC used a TID to receive counterfire acquisitions in the form of an ATI;CDR message and forwarded them to the DOCC. To provide the most responsive fire possible, the battalion FDC sent the mission to the MLRS battery FDC as an "At My Command" mission, so the launcher was laid and ready by the time approval came from the DOCC.

Redundancy of the FOB communications plan was critical to the success of the mission. The shortcomings of the new equipment used were many. The TID relied on the operation of the SEN that was prone to power fluctuations from the unreliable generator power in Albania. Even with the SEN operating

properly, the phones tended to cut out because of the satellite or tropospheric connection, severing the digital link. TACSAT communications equipment required in-depth instruction on proper operations, and the light antennas were prone to be knocked off azimuth and elevation in the field environment. Communications security (COMSEC) changes, a task not normally trained, also caused periods of communications trouble with the FOB units, none of which trained or worked together before deploying from Tirana.

Our solutions to these C<sup>2</sup> challenges in Albania served us well when the headquarters was tasked to deploy to Kosovo to serve as the Force FA headquarters for TF Falcon's initial entry forces.

**TF Falcon—Kosovo.** Headquarters, Headquarters and Service Battery (HHS), 1-27 FA, was the only battalion-level headquarters battery in theater with FDC and staff assets in place. Only HHS deployed to Kosovo; our firing batteries remained in Tirana to prepare for redeployment to the Central Region.

As the Force FA headquarters, the battalion FDC was tasked to control fires for three different cannon systems from two service branches: A/4-27 FA (M109A6); C/1-319 FA (M119); and

L/3/10 FA, USMC (M198), as well D/1-33 FA, a target acquisition battery (TAB). The organization for combat had A Battery general support (GS) to TF Falcon, C Battery DS to 2-505 Infantry (IN) (Airborne), L Battery DS to the 26th Marine Expeditionary Unit (MEU) and D Battery GS to TF Falcon. As an FDC trained to provide GS fires to the corps fight, the section had to learn the fire direction procedures for the DS FDC.

The crewmembers in Tirana while the battalion operated at the FOB also had to train on IFSAS and learn the basics of cannon fire direction (especially shell/fuze combinations). This task was made easier with the addition of a 13C20 attached from the 41st FA Brigade.

As the Force FA Headquarters, the battalion FDC would direct all fires for TF Falcon. Based on the Kosovo Force (KFOR) rules of engagement (ROE), the battalion leadership developed the clearance of fire procedures for the task force. (See Figure 3.) These clearance of fires procedures were for all munitions except illumination; the approval process for illumination was delegated to the TF commander. Figure 4 on Page 24 shows the 1-27 FA FDC's voice and digital communications nets.

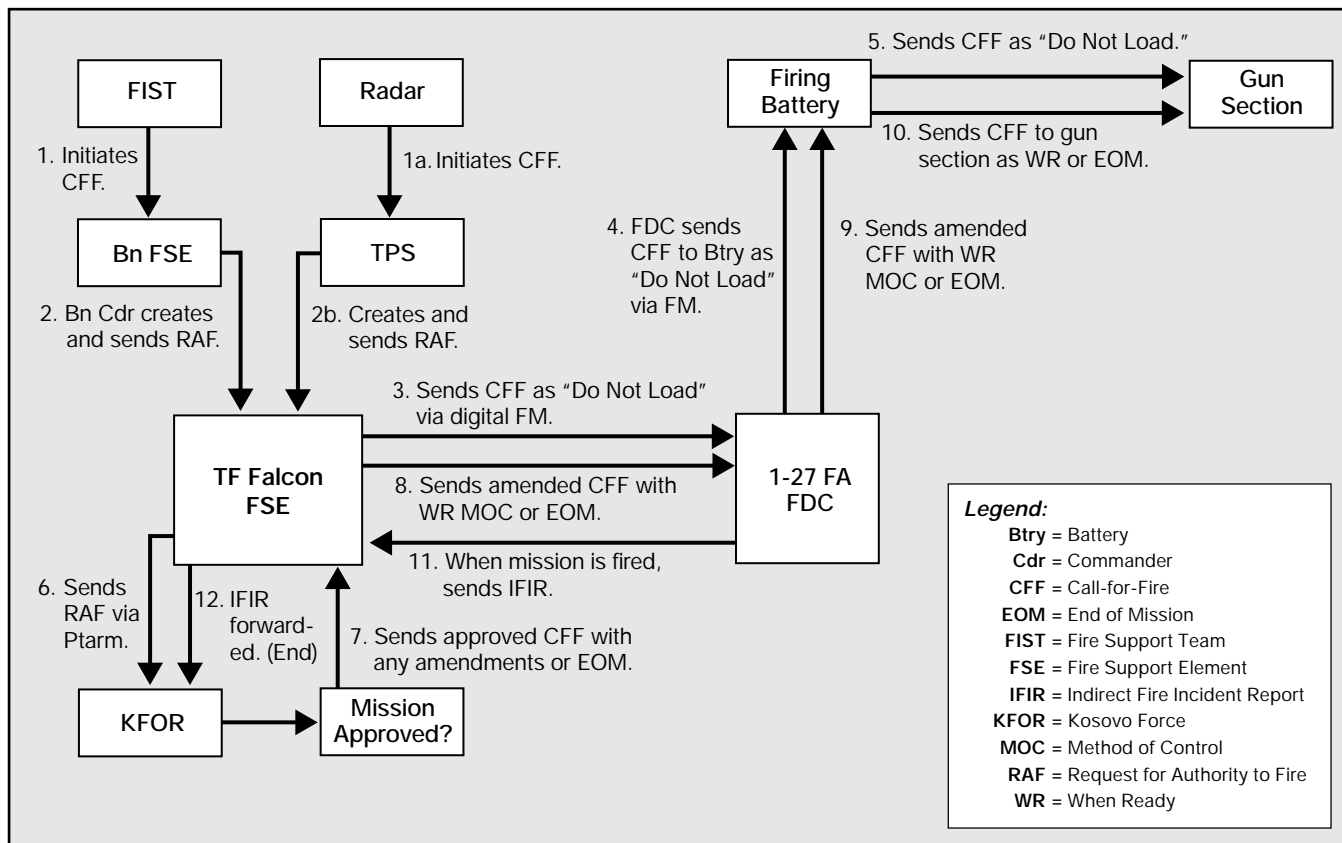


Figure 3: Clearance of Fires Procedures for Task Force Falcon

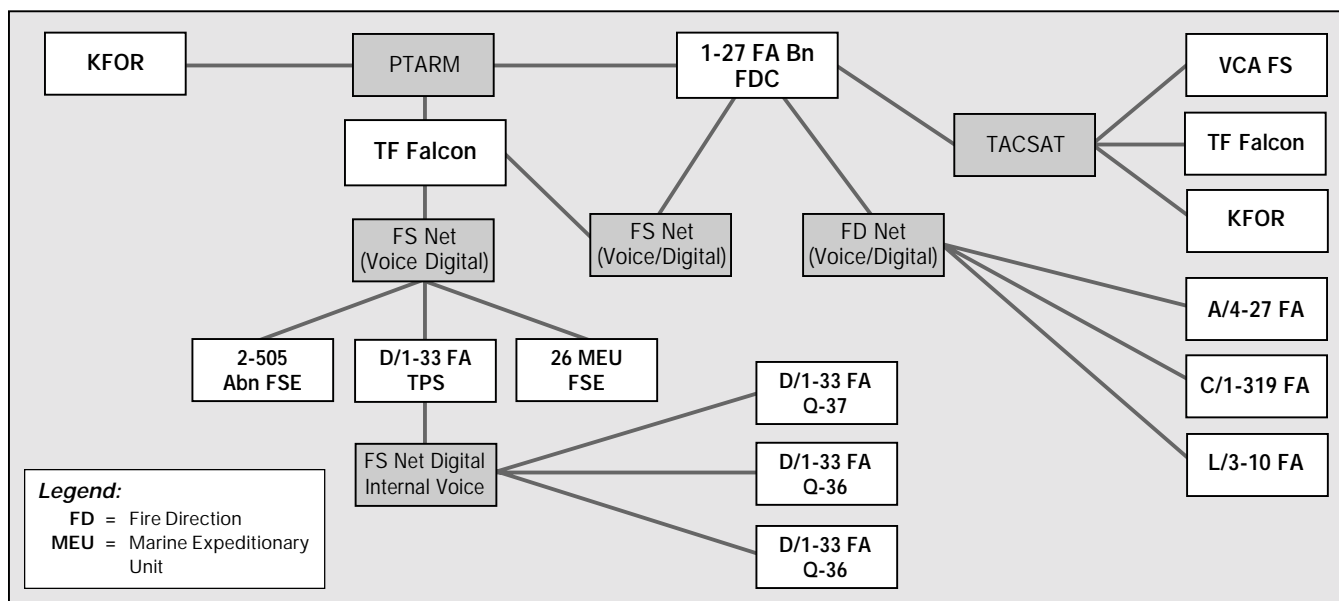
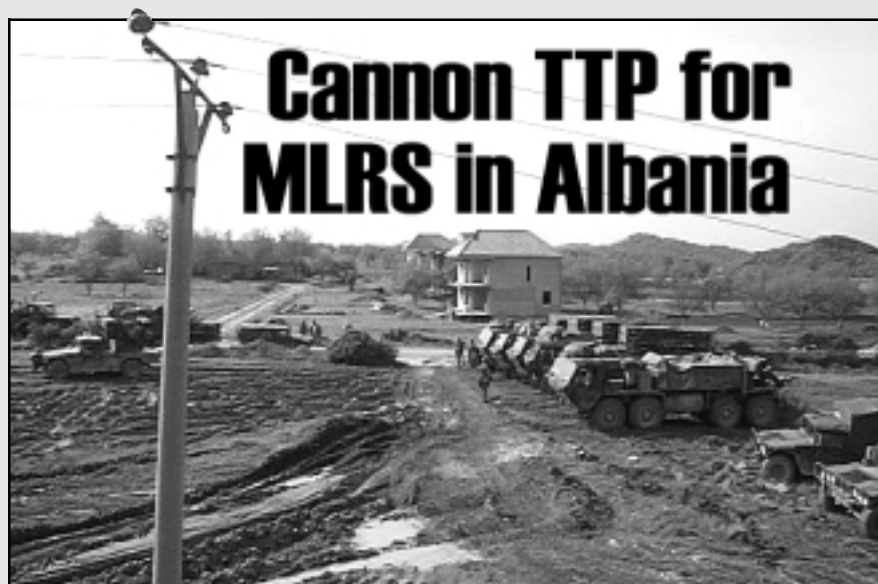


Figure 4: FA communications for TF Falcon relied on the single-channel ground and airborne radio system (SINCGARS) FM radio for its voice and digital traffic. Spitfire TACSATs maintained the command and control link with battalion units in Albania and logistics convoys to and from Camp Able Sentry in Macedonia. Ptarmagin phones, a UK equivalent to the MSE, were the primary means of communicating with the KFOR Headquarters in Pristina, Kosovo, to clear fires.



**M**ultiple-launch rocket system (MLRS) tactics, techniques and procedures (TTP) in Albania were dictated by mission, enemy, terrain, troops and time available (METT-T). The classic TTP outlined in *FM 6-60 TTP for MLRS* was less applicable for supporting Task Force Hawk than the TTP in *FM 6-50 TTP for the Cannon Battery*. Neither TTP proved sufficient. This led to our developing three battle drills: Linear, Echelon and Lazy W.

**Linear Battle Drill.** In this drill, the battery lined up on an abandoned road about 1,500 meters long with approximately 100 meters spread between launchers; the battery operations cen-

ter (BOC) was in the middle, approximately 200 meters from the closest launchers. The logistics supply points (LSPs) were on both ends of the line about 200 meters from the nearest launcher.

For a linear position area (PA), the commander selected a road with intersections at both ends and, preferably, one intersection in the center. The intersections at the ends made adequate LSPs, allowing the heavy-expanded mobility tactical trucks (HEMTTs) room to maneuver. Most importantly, the intersections provided multiple routes for displacement in the event of overwhelming air or ground attack or counterbattery fire.

To avoid traffic jams along the road at the firing points, we numbered our launchers just like howitzers. This way, depending on the space available, the commander could make the call on the order of march, either heads or tails. LSPs were established once the launchers were in their firing points. This kept the HEMTTs out of the way during occupation.

**Echelon Battle Drill.** For this drill, the battery occupied a kilometer-square field or plateau with one platoon in front of the other. The five-launcher platoon occupied in a modified star formation—more of a “W” than the star depicted in *FM 6-50*. The four-launcher platoon went into an offset diamond formation. The distance between the platoons was approximately 200 meters, depending on terrain, and the spread between launchers was 100 to 200 meters. The BOC sat 300 meters to the rear of the formations, preferably on high ground overlooking the platoons. One LSP was established in the vicinity of the BOC.

This drill was slightly more complex in execution. The commander had to select an area with multiple routes in and out, an area with enough space to support the battery’s operations and maintain local security. The protecting infantry force preferred to secure a tight perimeter. Optimal or not, the perimeter size that worked was roughly a square kilometer.

The Echelon Drill required thorough, coordinated advanced party operations. We established survey control points



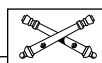
Our MLRS battalion TOC was not accustomed to working with and integrating fire support personnel. To process counterfire missions, the TPS was integrated into the 1-27 TOC, which later was collocated with the TF FSE. The FSEs from 2-505 IN and the 26th MEU maintained communications with the TF FSE on the TF fire support voice and digital nets. To train the FDC personnel on cannon fire direction and processes, we conducted several small-scale digital exercises and rehearsals, integrating the TF fire support team and refining the battalion's TTP for cannon fires.

The counterfire radars—one Q-36 and one Q-37—in Camp Bondsteel, Kosovo, and one Q-36 in Camp Montieth, Kosovo, began acquiring targets when they became operational. All targets were “unwanted,” mostly small-arms fire, but they gave the task force an additional source of intelligence and prac-

tice in processing cannon counterfire missions. This was especially useful to L Battery, 26th MEU, at Camp Montieth, which had a large share of incidents of small-arms fire.

In late July 1999, it was over. The battalion's headquarters handed off the mission to 1-7 FA, 1st Infantry Division (Mechanized), and redeployed to the Central Region. TF 1-27 FA and our attached units never fired a round.

Although challenged by changing missions, fielding new equipment and conducting nonstandard operations, the battalion proved its inherent flexibility. The innovative thinking of talented soldiers allowed the battalion to rise above the C<sup>2</sup> challenges we encountered.



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(SCPs) just inside the entry control point (ECP) along a trail leading to the firing points when operating in the thick grass of coastal plains and foothills. In the mountains, the vegetation didn't interfere with our establishing SCPs on the firing points. The platoon leaders had to think on their feet, analyze the terrain and establish SCPs. This was not difficult, but it was time-sensitive, given only one position and azimuth determining system (PADS).

**Lazy W Battle Drill.** This drill put the battery in a “W” formation across the breath of a narrow plateau. Given the size of the plateau designated as the PA, the firing points for the launchers were 200 to 400 meters apart. The BOC remained in the battery hide area, and an LSP was established at the end of the W between the hide area and the firing points. The hide area was approximately 300 to 400 meters from the nearest firing point at the end of the W and comprised an area of about 300 meters square.

The Lazy W Battle Drill was less advanced party-intensive but more demanding on the section chiefs and operations officer. The advanced party requirements were split between the platoon leaders: one established the battery hide area and LSP while the other established the firing points. The launchers were numbered and the section chiefs knew their positions in the formation. This is critical because each launcher proceeded directly to the bat-

tery hide area after arriving in the PA, leaving the hide area only to execute a fire mission. The same launcher fired from the same point based on the piece-to-fire selection made by the operations officer. This reduced the counterbattery threat because launchers moved to firing points throughout the length of the PA, generally three-by-one kilometers, giving the appearance of random fire from random locations.

The challenge was to manage the piece-to-fire selections so they weren't random and followed the scheme of fires. Fortunately in Albania, the majority of our fire missions were pre-planned suppression of enemy air defenses (SEAD). This allowed the operations officer to designate the piece-to-fire early, synchronize movement times with time-on-target or time-to-fire times and rehearse execution.

To facilitate quick ammunition reloads to reduce the signature of the battery in the PA, the LSPs were established between the hide area and the firing points. This allowed the launchers to reload along a single route before returning to the hide area, creating minimum movement in the PA.

**Force Protection.** While the launchers occupied their respective firing points, the infantry pushed four M2 Bradley fighting vehicles out of the hide area to provide security for the PA. The Bradleys controlled access to the PA while the dismounts provided security for the hide area.

Face-to-face coordination between the infantry company commander was essential to synchronize force protection with the fire plan. The company commander had a copy of the firing windows, so he could synchronize the PA's defensive plan. During the coordination, far and near recognition signals were established for movement in and out of the hide area and around the LSP.

Additionally, the infantry had a signal or code word that indicated when the launchers were about to fire. That information was disseminated down to the section/squad level. To avoid fratricide, the infantry knew every movement occurring in the PA.

Because the infantry secured the PA before the battery arrived, coordination on where to locate the command post (CP) was conducted before the drill began. The infantry CP and the BOC were collocated. Communications equipment, situation maps and charts, and intelligence reports were centralized. The BOC easily incorporated an infantry CP.

In Albania, the overwhelming concern with force protection put an emphasis on tactical solutions to meet the demands of METT-T, limiting employment options. Our battle drills reflect the emphasis on tactical improvisation over technical possibilities.

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